557
N42n
1960

PLEASE POST

NEWS LETTER NO. 12

MARCH 1961

GEOLOGICAL RESEARCH IN NEW YORK STATE

1960

THE LIBRARY OF THE
JAN 2 1963
UNIVERSITY OF ILLINOIS

CONTENTS

PRECAMBRIAN GEOLOGY 2

GENERAL GEOLOGY, INCLUDING PALEONTOLOGY AND STRATIGRAPHY 3

GLACIAL GEOLOGY 7

ECONOMIC GEOLOGY 9

GEOPHYSICS AND GEOCHEMISTRY 11

PUBLICATIONS DIFFICULT TO OBTAIN ON INTER-LIBRARY LOAN 12

THESES ON NEW YORK GEOLOGY (1960 SUPPLEMENT) 14

INTRODUCTION

As indicated to you in our yearly request for News Letter data, this annual publication has been delayed this year because of the pressure resulting from the compilation of the new State Geological Map and the deadline resulting therefrom. Because it seems to be of unusual interest to many of our respondents, we would like to give a progress report on this activity.

Since the completion of the 1960 field season, compilation of data has gone on steadily through the activities of DONALD W. FISHER, Y. WILLIAM ISACHSEN, LAWRENCE V. RICKARD and JOHN G. BROUGHTON. Four of the five sheets have been completed and are now being engraved. The fifth sheet is being checked and will join the others this month. The amount of detailed information entailed can be judged by the fact that 160 mapping units will appear on this map, 60 for the Precambrian and 100 for post-Precambrian.

It is hoped that handcolored copies of some of the sheets will be available for inspection at the New York State Geological Association meetings sponsored by Rensselaer Polytechnic Institute on May 12 and 13. Color press proofs of the entire map will be completed on September 15 and, depending on available printing funds, we hope to go to press with the completed map shortly after that date.

In view of some of the items reported for inclusion in the News Letter, it should be repeated that reports of anticipated work are ordinarily not included. In some cases it has been difficult, on the basis of the replies, to determine whether certain investigations have been carried on at the graduate or undergraduate level.

GEOLOGY LIBRARY

557
N42n
1960

We have not listed items of the latter category since most of these are superficial training exercises and their announcement might serve to dissuade a serious and competent research worker from carrying out work on the same or similar problem. We feel that most of the geological fraternity will agree with us in this position.

PRECAMBRIAN GEOLOGY

H. M. BANNERMAN of the United States Geological Survey continued his program of detailed geologic mapping and structural and petrographic studies in the Richville 7 1/2' quadrangle in the northwestern Adirondacks.

ROBERT O. BLOOMER of St. Lawrence University is continuing detailed geologic mapping of the Canton phacolith and associated formations. Instrumental, chemical and modal analyses of rocks and minerals from the area is in progress. Local Precambrian rocks are being used as analytical standards and a number have been prepared and analyzed to date.

BRIAN T. C. DAVIS of Princeton University spent the summer field season of 1960 in geologic mapping of the St. Regis quadrangle in the Adirondack area and expects to complete it in 1961 as the basis for a Ph.D. dissertation.

DIRK DE WAARD of Syracuse University has started a tectonic-petrologic research project, financed by the National Science Foundation, in the hitherto unmapped West Canada Lakes quadrangle in the southwestern Adirondacks. With the assistance of MANFRED KEHLENBECK, Master's candidate at Syracuse University, three months of the summer in 1960 were devoted to detailed mapping of the Little Moose Mountain area. The area contains a closed "synform" or "downfold" consisting of sheets or layers of charnockite, marble, amphibolites, garnet gneisses, a great many sills of metadiabase, and lenticular bodies of metagabbro. One of the metagabbro lenses has the plano-convex shape of a laccolith which enabled determination of top and bottom of the folded series and which indicates that the synform is a syncline with an overturned northern limb. Kehlenbeck's specific part in the research is to establish a stratigraphic column. Results of his field work during 1960 will be used for a thesis leading to an MS degree.

ROBERT DODD, Ph.D. candidate at Princeton University, is continuing his study of the geology of the Popolopen Lake quadrangle. Field work was supported by a New York State Museum and Science Service Honorarium.

A. E. J. and CELESTE ENGEL of the United States Geological Survey are continuing field and laboratory studies on the relationships of metamorphism and the origin of mineral deposits in the northwestern Adirondacks. A paper "Progressive Metamorphism of Amphibolite Rock, Northwest Adirondack Mountains, New York" has been approved for publication in an outside journal. The report on Precambrian geology and talc deposits of the Balmat-Edwards District is being reviewed. Other papers were published during 1960.

ALAN F. HILLS of Yale University initiated the mapping of Precambrian geology of the Glens Falls quadrangle in the southeastern Adirondacks. The area under study was later expanded to include the areas of Precambrian rock in the Fort Ann and Whitehall quadrangles.

Y. W. ISACHSEN of the Geological Survey-New York State Museum and Science Service, in connection with the State Geological Map, mapped the following quadrangles in the southern Adirondacks in reconnaissance fashion during the past two field seasons:

Lassellsville, Big Moose, McKeever, Number Four, Old Forge and West Canada Lakes. It is planned that the reconnaissance geology of the Big Moose, McKeever, Number Four, and Old Forge quadrangles will be used in a joint publication with the United States Geological Survey relating aeromagnetics and areal geology.

ALAN KAYS of Washington University is making a detailed study of the mineralogy of the Sanford Hill pit and surrounding area of the MacIntyre Development iron-titanium deposit at Tahawus. This will be submitted as a doctoral thesis and should be completed in the near future.

TERRY W. OFFIELD of Yale Univeriity completed field work in the Goshen and Greenwood Lake 15' quadrangles in June 1960. The Precambrian rocks were mapped at 1:12,000 and a partial stratigraphy of 14 lithologic units was defined. The Cambro-Ordovician dolomites and shales were subdivided on the basis of lithology and new fossil evidence. July and August were spent in reconnaissance mapping of the Hudson Highlands for the new State Geological Map. Offield's field work was supported by the Geological Survey-New York State Museum and Science Service.

A. WILLIAMS POSTEL of the United States Geological Survey reports that field work has been completed on the Adirondack project under his supervision. Two manuscripts are being processed for publication, the Mooers quadrangle by D. R. WIESNET and Postel which will be published in the GQ series, and the Ohio quadrangle by ARTHUR NELSON which will be published as a United States Geological Survey Bulletin.

SIMON SCHAFFEL is completing his study entitled "The Storm King Granite Phase In The Reading Prong". This investigation, which is to be completed this year, will attempt the construction of the geologic history of the Highlands during Storm King time. It is to be submitted as a Ph.D. dissertation at Rutgers University.

MATT S. WALTON of Yale University completed all field work on the Precambrian rocks of the Elizabethtown, Port Henry, Paradox Lake and Ticonderoga 15' quadrangles. Preliminary geologic maps on a scale of an inch to the mile giving somewhat generalized presentation of the Precambrian geology have been prepared. Preliminary work is in progress under a National Science Foundation grant to continue this mapping in the Bolton Landing 15' quadrangle.

GENERAL GEOLOGY INCLUDING PALEONTOLOGY AND STRATIGRAPHY

C. V. ALLEN of Rensselaer Polytechnic Institute is working on subsurface correlations between wells in eastern New York. This will be submitted as a Master's thesis.

D. R. BAUM of Rensselaer Polytechnic Institute made "A Petrographic Study of the Carbonates of the West Central Taconic Region" and concluded that petrographic criteria (Folk classification) contributed strongly to the identification of calcareous turbidites. This was submitted as a Master's thesis.

J. M. BERDAN of the United States Geological Survey is preparing a report on brachiopods and ostracods of the Manlius and Cobleskill formations of central New York. A report on stratigraphy and micropaleontology of Upper Cretaceous deposits, Long Island, New York is being prepared by RUTH TODD with N. M. PERLMUTTER, both of the United States Geological Survey. This is part of the general project on Mesozoic Invertebrate Paleontology and Stratigraphy under the direction of R. W. IMLAY.

J. M. BIRD of Rensselaer Polytechnic Institute is mapping the Averill Park and Nassau quadrangles, New York for his Ph.D. dissertation. This area includes the contact of the "Nassau" and the Rensselaer graywacke.

J. G. CARVER of Rensselaer Polytechnic Institute is carrying on an investigation of the petrography and petrology of the Manlius and Coeymans formations of the Helderberg escarpment. This will be submitted as a Master's thesis.

JESSE L. CRAFT has completed "A Comparison of The Fiddler's Green and Falkirk members of the Bertie Formation of Central New York". Field work was completed during the summer of 1960 and a detailed study of the samples studied is now in progress. This consists of insoluble residue studies, Ca;Mg ratio, thin sections and etched surfaces.

WILLIAM CUTCLIFF of Rensselaer Polytechnic Institute completed mapping for his Master's thesis on the bedrock geology of part of the North Troy and Tomhannock sheets.

RONALD S. DEAN of McGill University has completed as a doctoral dissertation a study of the shales of the St. Lawrence Lowland.

WALLACE DE WITT, JR. of the United States Geological Survey is in charge of a project investigating the stratigraphy of the New York-Dunkirk and related beds. Field mapping of the Keuka Lake and Penn Yan quadrangles was completed by M. J. BERGIN and he is preparing a report on the geology of that area. G. W. COLTON and de Witt measured more than a dozen sections of the Sonyea and Genesee formations for additional detailed control in the area between Conesus Lake and Keuka Lake. de Witt examined and measured more than 30 sections of the Tully limestone and associated rocks in the area between Tully and Canandaigua Lake. A summary report on revisions of the stratigraphy of Upper Devonian rocks on the western half of New York is being prepared by de Witt, Colton and J. E. PEPPER. A report on the Bath and Woodhull quadrangles is being prepared by Pepper and J. E. JOHNSTON. Additional mapping may be done in the Colden, Cowlesville and Holland quadrangles.

J. G. ELAM, formerly of Rensselaer Polytechnic Institute, completed a Ph.D. dissertation entitled "Geology of Troy South and East Greenbush Quadrangles, New York". Elam successfully discriminated the formations (lithofacies) within his thesis area and mapped their areal extent. In addition to mapping the structure and the stratigraphy of the area he made extensive contributions to the sedimentology.

DONALD W. FISHER of the Geological Survey-New York State Museum and Science Service has completed a correlation chart of the Cambrian rocks of New York State. This chart will probably be published late in 1961. Work is underway on a companion correlation chart of the Ordovician rocks in New York.

F. B. GERHARD of Rensselaer Polytechnic Institute has completed mapping of the northwest quarter of the Copake quadrangle for his Master's thesis.

HANS J. HOFMANN of McGill University has essentially completed his investigation of the Chazy group in the St. Lawrence Lowland. This will be submitted as a doctoral dissertation.

THOMAS LEWIS of Ohio State University has begun a sedimentary petrologic study of the Potsdam sandstone north of the Adirondacks.

KURT E. LOWE of the City College of New York reports the completion of the first phase of Project Knickerbocker, a joint project of the geology departments in the New York Metropolitan area and the Geological Survey-New York State Museum and Science Service. The first phase of this project has been completed-the assembling of the geologic and structural map of Manhattan Island. Similar maps are being constructed for the other counties of New York City. The text for this investigation will be initiated during the summer of 1961.

S. W. LOWMAN of Rensselaer Polytechnic Institute continued investigation of Taconic sediments with special emphasis on the brecciolas and other members of the turbidite clan including some silts and shales which exhibit cross-bedding and cyclical deposition. Cyclical deposits composed of black shale, limestone, siltstone, and graded sandstone of probable turbidite origin also occur in the lower part of the Deepkill. Lowman also worked on the correlation of pre-Devonian strata in wells of eastern New York.

A. LEE MC ALESTER of Yale University completed his doctoral dissertation "Upper Devonian Pelecypods of the New York-Chemung Stage". The ecological conclusions of this study will be prepared as a separate paper. An abstract of this paper "Pelecypod Associations and Ecology in the New York Upper Devonian" was presented at the Denver meeting of the Geological Society of America.

ROBERT B. MAC DONALD, a Master's candidate at Rutgers University, is making a study of the alluvial sands of the Delaware River and its principal tributaries. He is concentrating on the mineral composition of the sand grains in about 50 samples, chosen so as to be representative of the principal geologic regions in the drainage basins. A considerable number of the samples is from New York or along the boundary between New York and Pennsylvania.

WARREN MANSPEIZER of Rutgers University completed his second summer of work mapping the Canadaway group in eastern Cattaraugus County, Allegany County and western Steuben County for his doctoral dissertation. Information has been collected on primary structural features which may indicate conditions of deposition and direction of sediment transport.

GERARD V. MIDDLETON of Hamilton College, McMaster University, is continuing his investigations of the petrology and geochemistry of the Normanskill graywackes.

ANDERSON OHAN of the City College of New York is involved in the geologic investigation of Anthony's Nose and the Paleozoic inliers of Peekskill Hollow Creek and Canopus Creek Vallies in the Hudson Highlands. This study is to be submitted for his Master of Science dissertation at New York University.

WILLIAM A. OLIVER of the United States Geological Survey continued his study of New York Devonian corals. Projects nearing completion are (1) Colonial rugose corals of the Onondaga limestone (2) horn corals from Stromatoporoid beds in the Manlius and Coeyman limestones, and (3) redescription of New Scotland formation rugose corals.

M. A. OZOL of Rensselaer Polytechnic Institute is working on the petrology and petrography of the Onondaga limestone with emphasis on the genesis of the flints for his doctorate.

LUCIAN B. PLATT of Princeton, New Jersey spent about two weeks during the field season of 1960 in reconnaissance in the Cambridge, Salem and Shushan 7 1/2' quadrangles. This was reconnaissance work for the State Geological Map and was supported by the Geological Survey-New York State Museum and Science Service.

DONALD B. POTTER of Hamilton College, assisted by JOHN LAWRENCE, continued structural and stratigraphic work in the central Taconic region for the Geological Survey-New York State Museum and Science Service during the summer of 1960. Some of the findings in the northern half of the Hoosick Falls quadrangles were: a small klippe with fossiliferous Lower Cambrian pelites thrust over Normanskill graywacke; large recumbant folds involving fossiliferous Lower Cambrian and Middle Canadian (Poultney type) pelites, Poultney and other Lower Ordovician pelites and quartzites thrust over Ordovician carbonates on the western spur of West Mountain.

L. V. RICKARD of the Geological Survey-New York State Museum and Science Service is compiling a correlation chart of Devonian formations of New York State. He has essentially completed a report on the "Geology of the Richfield Springs and Cooperstown Quadrangles" with D. H. ZENGER.

CHARLES ROCKWELL of Cornell University is beginning work on his Ph.D. thesis "Recent Sedimentation In Great South Bay, Long Island, New York". The purpose of this study is to provide basic information concerning the sedimentary environments of the typical North Atlantic Coast lagoon. Previous emphasis in studies of this sort have been on coastal lagoons of the Gulf Coast. One of the objectives of this study is to present data which will illustrate differences and similarities of lagoonal deposits being deposited under dissimilar environmental conditions.

ALI A. SAKKAF has made "A Study of the Microscopic Impurities Of Selected Limestone and Dolomite in the Vicinity of Syracuse, New York."

JOHN SANDERS of Yale University has in preparation a joint paper with MARIAN KSIAZKIEWCZ on "Directional Structures and Bedding in the Austin Glen Formation from Austin Glen near Catskill, New York to Kingston." A paper on the Bald Mountain limestone by Sanders, LUCIAN PLATT and BROCK POWERS is soon to appear as a short note in the Geological Society of America Bulletin.

W. S. SKINNER of the Sun Oil Company, Pittsburgh District Office, reports that his company has been making a study of parts of the Paleozoic section in New York with regard to thickness, conditions of deposition and possible structure. They hope eventually to release this information for general use.

ROBERT G. SUTTON of the University of Rochester is engaged in a long range investigation of the Upper Devonian rocks of central and eastern New York for the Geological Survey-New York State Museum and Science Service. During the 1960 field season Sutton traced several Devonian black shales in the area between Seneca Lake and the Genesee Valley to clarify further the correlation of these Upper Devonian units. Sutton also supervised the work of DANIEL B. TWIGG and FRANK FLETCHER. Twigg is carrying on an investigation of the stratigraphic equivalence of the Nunda sandstone, Wiscoy shale, Dunkirk shale and Caneadea shale. Regional and structural patterns were investigated based upon subsurface and surface data in the Corning 15' quadrangle. Fletcher began a structural and stratigraphic investigation of the relationships of the Catskill group in southeastern New York and northeastern Pennsylvania on the basis of growth lithological characteristics. "Catskill formation" is redefined as a group and divided into five formations. The direction of the source of the sediments is indicated by cross-bedding and other primary current structures. The nature of the source area is reflected in the graywackes and especially in the pebbles of the conglomerates.

WILLIAM A. TATEM of the New York State College of Ceramics has completed a mineralogical study of five illitic materials after heat treatment to determine the

development of the glass phase from the initial glass-forming temperature to the temperature of complete melting. X-ray diffraction and petrographic techniques were used.

IRVING H. TESMER of Buffalo State College for Teachers is cooperating on a geologic report "The Geology of Erie County" with EDWARD J. BUEHLER of the University of Buffalo. The reports of this final work will be published as a Bulletin of the Buffalo Society of Natural Sciences. A geologic map of Erie County has been completed and the accompanying manuscript is essentially finished. Tesmer has a grant from the State University of New York to continue his investigation of the Geology of Cattaraugus County. Buehler is working on a study of Hamilton epizooites. The first part of the study, dealing with the systematics of the forms, is largely completed.

SAMUEL J. TUTHILL of Syracuse University has made a local survey of the Cardiff shale (Middle Devonian) in the Chittenango Valley, New York. Qualitative and quantitative analytical techniques have established a new approach to the boundary problem of the Cardiff and Mottville members of the Marcellus formation. Carbonate and iron content determinations and fossil content, as well as other physical characteristics in a series of stratigraphic samples of shale taken at eight foot intervals in the beds, placed the boundary between these members at 225 feet above the base of the Marcellus formation. This work was completed for a Master of Science degree in science education.

W. R. WAGNER of the Pennsylvania Geological Survey has completed a report entitled "Cambro-Ordovician Stratigraphy of Northwestern Pennsylvania and Bordering Regions". The report attempts to reconcile the Cambro-Ordovician nomenclatural sequences converging on northwestern Pennsylvania from Ohio, central Pennsylvania and New York. Four New York wells have been used in the cross-section accompanying the text. They are the Kyle Morse #1, Chautauqua County, K. R. Wilson #1, Wyoming County, C. C. Kesselring #1, Chemung County, and Lobdell #1, Chenango County. A similar report dealing with the Silurian system is in progress by ADDISON S. CATE of the Pennsylvania State Survey. Cate has also submitted for publication several subsurface stratigraphic cross-sections in extending into Ohio and New York. The sections include information on penetrated well sections from the Lower Devonian to the top of the Ordovician.

DONALD ZENGER of Cornell University has completed a progress report on the Lockport dolomite. These stratigraphic and paleontologic studies will comprise his Ph.D. thesis. This work was supported by a New York State Museum and Science Service Honorarium.

GLACIAL GEOLOGY

DAVID B. BAYER of Syracuse University carried on field work during the summer of 1960 on the north shore of Long Island from Wading River eastward to Ducks Pond Point. The three members of the Manhasset formation were sampled at approximately one mile intervals along the shore bluffs. The primary object of the investigation is to determine the mineral assemblages of the three members and the chronology of events in the area with an attempt to determine the nature of the "Montauk Till", the origin which has been in some dispute.

NICHOLAS K. COCH of the University of Rochester is carrying on a study of the textural and mineralogical variations in Lake Ontario beach sands between Rochester and Port Ontario, New York. This study consists of a detailed examination of beach

and off-shore samples with regard to noting changes in mineralogy and texture along the shore and relating changes in mineralogy to exposures of different kinds of bedrock and till.

G. GORDON CONNALLY, Ph.D. candidate at Michigan State University, mapped pre-Valley Heads glacial deposits between the Genesee River and Keuka Lake as part of his research. An abundance of Valley-Heads and some pre-Valley-Heads drift was found to be present on upland surfaces that were previously described as barren. Supporting laboratory analyses indicate that the drift distribution is unlike that postulated by MacClintock and Apfel in 1944, but similar to that found by Moss and Ritter in press. This work was supported by a New York State Museum and Science Service Honorarium.

C. S. DENNEY of the U. S. Geological Survey is in charge of a project to investigate the surficial geology of the northeastern Adirondacks. Field work in the Dannemora and the west half of the Plattsburgh quadrangles is expected to begin during the summer of 1961. The final report from Denney's investigation of the surficial geology of the Elmira-Williamsport region, New York-Pennsylvania, has been approved for publication as a United States Geological Survey professional paper.

RHODES W. FAIRBRIDGE of Columbia University and students have been working on the geomorphology of Long Island Sound and the adjacent land areas. Most of this has to do with the relative elevations of land and sea during and since the Pleistocene. WALTER S. NEWMAN of Queens College and Fairbridge presented a summary of some of these results to the Geological Society of America in Denver in November 1960. This resulted in abstracts dealing with glacial lakes in Long Island Sound and active subsidence in the New York area. Quantitative evidences is accumulating that the metropolitan area is and has been absolutely subsiding in post-Wisconsin times at a rate of about 1.5-2.0 mm./year. This subsidence is apparently occurring along the entire southern portion of the New England coast and is complimentary to, although opposite in sign from, post-glacial isostatic rebound. Fairbridge and OSWALD A. KREBS have just completed a manuscript entitled "Sea Level and the Southern Oscillation" indicating that the notable rise of sea level along the Atlantic Coast and specifically in New York City is only about one-third attributable to the eustatic rise and about two-thirds to a change in the velocity of the Gulf Stream. Newman, Fairbridge and B. SALWEN, also of Columbia University, have in preparation a summary paper on the late Quaternary subsidence of southern New England. Newman and Fairbridge are also working on the late Quaternary geology of Flushing Meadow, Flushing Bay, LaGuardia Field, Whitestone and Throggs Neck in northern Queens and southeastern Bronx. This study is being pursued by analysis of boring logs and samples supplied by the New York State Department of Public Works, The Port of New York Authority and the Triborough Bridge and Tunnel Authority. The investigation includes sedimentology and microfossil identification. Preliminary results indicate that sea level in this area was 110 feet below its present level 11,800 years B.P. and that Long Island Sound was first inundated by the Flandrian transgression some 12,000 years B.P.

JOHN H. MOSS of Franklin and Marshall College and DALE RITTER of Princeton University have just submitted for publication "New Evidence Regarding the Binghamton Substage in the Region Between the Finger Lakes and Catskills, New York". Moss spent the summer of 1960 mapping in the Susquehanna Valley between Binghamton and Waverly. Ritter has been mapping glacial deposits south and southeast of the Valley Heads moraine near Cazenovia.

ERNEST H. MULLER of Syracuse University, assisted by JAMES STREET of the same institution, continued investigations of the surface geology of western New York for the Geological Survey-New York State Museum and Science Service. Reconnaissance of the Ontario Lake Plain between the Niagara and Genesee Rivers was followed by mapping of the Angelica quadrangle and adjacent areas in Allegany County. Street is also completing a detailed field and laboratory study of the Wisconsin drift of the Rush Creek area, Allegany County, New York. The work is being done as part of the program of the Geological Survey and will be submitted as a Master's thesis.

DAVID W. TRAINER of Colgate University and students are working on a National Science Foundation grant to map the surficial geology of Madison County on 7 1/2' quadrangles. So far, the Hamilton and Oriskany Falls quadrangles have been partially done as well as some preliminary work on the Munnsville, Vernon and West Eaton sheets.

ECONOMIC GEOLOGY

BYRD BERMAN of Villanova University is completing his studies of the Clinton iron ores as a Ph.D. research project at Columbia University. This research has involved field studies in New York and other Appalachian states and is concerned with the sedimentary and chemical conditions of iron ore formation. Field work in New York has been supported by a New York State Museum and Science Service Honorarium.

J. R. DUNN of Rensselaer Polytechnic Institute has been directing extensive studies of the economic geology of the Albany and Kingston areas and has been compiling information on the nature and effects of horizontal rock movements in the Buffalo-Niagara Falls area.

A. F. HAGNER of the University of Illinois is directing the work of a number of graduate students of that institution in a project concerning magnetite mineralization in the Hudson Highlands and the northeast Adirondacks and its relation to tectonics and metamorphism. Hagner is completing two studies on the magnetite mineralization in the Sterling Lake in Ausable Forks districts. Both studies were done in cooperation with LORENCE G. COLLINS, now at San Fernando State College, and several other students. The results suggest that the mineralization in both districts was derived from the host rock during metamorphism and metasomatism. JAMES CARL has completed an x-ray fluorescent analysis of the iron content of mafic silicates in pyroxene amphibolite host rock at the Scott mine, Sterling Lake, New York. This will be submitted as a Master's thesis. LIVINGSTON CHASE of the United States Geological Survey has completed a Master's thesis on the Appalachian magnetite deposits in northern New York, southeastern New York and other eastern states. Chase plotted the lithology, structural attitude of the host rocks, thickness of ore bodies and many other factors to determine their relation to mineralization and tectonic factors, such as recesses in the regional trend and areas where structural elements intersect Appalachian trends. CHARLES CLEMENCY is making a titrimetric analysis of the total iron in the ferrous and ferric iron in minerals and rocks of the Sterling Lake district. A method for determining the ferrous and ferric iron by automatic derivative spectrophotometric titration has been developed and this method has been described and submitted for publication as a joint paper with Hagner. SAMUEL LEUNG has completed a Master's thesis on the iron content of the mafic minerals in the pyroxene amphibolite host rock at the Scott mine, Sterling Lake, New York. His work, as does Carl's, shows that the percentage of iron in mafic minerals decreases progressively toward the magnetite ore zone.

RALPH HEATH of the United States Geological Survey has reported the following activities of the Survey in Upstate New York and on Long Island: A brief report on "Sources of ground-water in southeastern New York" by N. M. PERLMUTTER was published during 1960 as Circular 417 of the United States Geological Survey.

A report on the ground-water resources of Rockland County prepared by N. M. Perlmutter was published as Bulletin GW-42 by the State Water Power and Control Commission. A report on the ground-water resources of Dutchess County was transmitted to the State Water Resources Commission (successor to the State Water Power and Control Commission) and will be published early in 1961 as Bulletin GW-43. A brief report on the ground-water resources of Sullivan County will be transmitted to the Commission for publication late in 1961. A report on the ground-water resources of Ontario County has been approved for publication but will probably not be published before early 1962.

Ground-water reports in various stages of review cover (1) the Massena-Waddington area, St. Lawrence County, by FRANK TRAINER and EDWARD SALVAS, (2) Saratoga County by Ralph Heath, FRED MACK, and JORDAN TANNENBAUM, and (3) Delaware County by JULIAN SOREN.

Field investigations of ground-water in progress in Upstate New York cover (1) Eastern Schenectady County by JOHN WINSLOW and LESLIE CRAIN, (2) the Niagara Frontier by RICHARD JOHNSTON, (3) the Jamestown area, Chautauqua County, by RICHARD WILKENS, (4) Orange and Ulster Counties by RICHARD DURYEA, (5) the Syracuse area (Oneida-lower Seneca Drainage basin) by Jordan Tannenbaum, and (6) southwestern Rensselaer County by JACK JOYCE.

A report on ground-water levels and problems in Suffolk County by J. F. HOFFMAN and E. R. LUBKE was sent to the State Water Resources Commission for publication in 1961 as Bulletin GW-44. A report on the hydrology of the Town of Southold by J. F. HOFFMAN is being made ready for printing as Bulletin GW-45. An article on salt-water encroachment in the Cedarhurst-Woodmere area of southwestern Nassau County by N. J. LUSCZYNSKI and W. V. SWARZENSKI was submitted to Economic Geology for publication as a journal article.

A report on the geology and ground-water resources of southern Nassau and southeastern Queens Counties by N. M. PERLMUTTER and J. J. GERAGHTY is being made ready for printing, probably in 1961, as a Geological Survey Water-Supply Paper. A report on the geology and ground-water situation of Plum Island, Suffolk County, New York is being prepared for publication as a Water-Supply Paper in 1961. A short article on a filter-press method for extracting water from core samples by N. J. Lusczynski has been approved for publication as a Geological Survey Water-Supply Paper. A report on the geology and hydrology of the Brookhaven National Laboratory, made for the Atomic Energy Commission, is being reviewed in Washington for publication as a Water-Supply Paper. An article on heads, gradients, and velocities of variable density ground-water by N. J. Lusczynski is being reviewed for probable publication as a journal article.

Areal ground-water reports on the Huntington-Smithtown area, Suffolk County, by E. R. Lubke; on the Southold area, Suffolk County, by H. C. CRANDELL; and on the geohydrology of northwestern Nassau County by W. V. Swarzenski have been completed and sent to Washington for technical review. These three reports will be published, either as Water-Supply Papers or Ground-Water Bulletins, probably in 1962.

Reports on areal ground-water investigations in Queens County by Julian Soren and N. M. Perlmutter; northeastern Nassau County by J. ISBISTER; the Babylon-Islip

area, Suffolk County by I. E. KANTROWITZ; and a report on sea-water encroachment in southern Nassau County by N. J. Lusczynski and W. V. Swarzenski are scheduled for completion late in 1961.

An investigation of the relation of fresh and salty ground-water in the Montauk Point area, Suffolk County, by N. M. Perlmutter and F. DELUCA was started late in 1960; the report is due in 1961.

W. L. KREIDLER of the Geological Survey-New York State Museum and Science Service completed a number of articles dealing with the production of oil and gas in New York State during 1959. He has essentially completed a companion volume to New York State Museum Bulletin 373 which will be entitled "Selected Deep Wells and Areas of Gas Production in Western New York."

B. F. LEONARD of the United States Geological Survey has prepared two final reports on the St. Lawrence County magnetite district, one on regional geology, and the other on ore deposits, have been approved for publication and are being prepared for printing as professional papers.

ROBERT E. SIMON, Engineer for the W. S. Moore Company with field office at Wanakena and J. R. FOLCHETTI, graduate student of St. Lawrence University, investigated magnetic anomalies on the ground which were discovered by aeromagnetic surveys conducted by the W. S. Moore Company and by the United States Geological Survey. This work appraised the possibilities of 24 anomalies in the Adirondacks and the Hudson Highlands.

PETER J. SOLOMON of Harvard University has begun a laboratory research project on the sulphide mobilization of lead-zinc ores at the Balmat Mine of the St. Joseph Lead Company in St. Lawrence County.

ARTHUR M. VAN TYNE of the Geological Survey-New York State Museum and Science Service is continuing well sample studies and subsurface correlations of formations in western New York. He is also gathering data on the relationship of structure and stratigraphy to the accumulation of hydrocarbons in the same area.

GEOPHYSICS AND GEOCHEMISTRY

J. R. BALSLEY of the United States Geological Survey is in charge of an Adirondack project relating magnetic and aerogeologic maps. Eight maps showing total intensity aeromagnetic data on the Adirondack area have recently been placed in open file. These maps cover the following areas: 1. Old Forge quadrangle and part of West Canada Lakes quadrangle 2. McKeever quadrangle 3. Big Moose quadrangle 4. Number Four quadrangle 5. part of Lowville quadrangle 6. parts of Bolton, Whitehall, Glens Falls and Fort Ann quadrangles 7. Elizabethtown, Paradox Lake, Port Henry and Ticonderoga quadrangles 8. part of Port Leyden quadrangle. This completes the release of data derived from the United States Geological Survey Adirondack aeromagnetic survey. Work on the New York-New Jersey Highland is continuing under the direction of Andrew Driscom of the United States Geological Survey. This involves correlation of aeromagnetic and geologic maps. Manuscript aeromagnetic maps of the following 8 quadrangles are being edited for publication: West Point, Cornwall, Popolopen Lake, Peekskill, Thiels, Haverstraw, Sloatsburg and Monroe.

A. F. BUDDINGTON of the United States Geological Survey spent two weeks collecting oriented samples of gabbroic anorthosite gneiss in the Willsboro quadrangle as a basis for a study of preferred dimensional and crystal-structure orientation as factors in orientation of magnetic susceptibility anisotropy and of remanent magnetism.

JACK V. EVERETT reports that the W. S. Moore Company of Duluth, Minnesota conducted an airborne magnetic survey over 2700 square miles of the Adirondacks and Hudson Highlands. This work was laid out to explore for magnetite deposits in areas where there was no record of previous flying.

STANFORD O. GROSS of The National Lead Company, MacIntyre Development, reports that studies of geology and geophysics will continue to be carried on by the staff at MacIntyre and by LE ROY SCHARON of Washington University, but have not yet been released for publication. This is in addition to Heyburn's thesis listed in the Supplement.

J. E. JOHNSTON of the United States Geological Survey is in charge of a project dealing with the synthesis of geologic data on United States Atlantic coastal plain and continental shelf. Plans to sample many of the rock types to obtain geochemical data have been formulated and if funds are available some drilling may be done in the southern portion of the coastal plain to obtain samples and other bore hole data.

DONALD S. MILLER of Rensselaer Polytechnic Institute has been doing research on the geochronology of the Adirondack metamorphic rocks. Analyses are being made on zircons, feldspars, and micas using the uranium-lead, the rubidium-strontium and the potassium-argon age determination methods. At the present time a zircon from the charnockitic granite has been partially analyzed and indicates an age of about 1,000 m.y.

J. A. PITKIN of the United States Geological Survey is in charge of a project dealing with the correlation of airborne radioactivity data and areal geology. Two reports are in preparation by PETER POPENOE on correlation of aeroradioactivity data and areal geology in northern New England and northwestern New York and in southern New England and southeastern New York. These reports are tentatively planned for publication in the Circular series.

GENE SIMMONS, Ph.D. candidate at Harvard University, is reducing data from his gravity survey of the Adirondack Mountains. His field work was supported by a New York State Museum and Science Service Honorarium award.

TARO TAKAHASHI and DAVID KRINSLEY of Alfred University-New York State College of Ceramics-will submit a report to Science on "An Application of Electron Microscopy to Geological Problems."

EARL G. TARR of the Tidewater Oil Company reports that a regional surface, subsurface and geophysical program is underway, the results of which cannot be revealed at this time due to the competitive nature of the work. New York State is included in the area of operations as well as the remainder of the basin which comprises the states of Ohio, Pennsylvania, West Virginia, Virginia and Maryland. Also being started under the auspices of the Pittsburgh Geological Society is a regional stratigraphic study of the entire Appalachian Basin. It is expected as a result of this study to prepare regional stratigraphic cross-sections and correlation charts which can be published and thus made available to everyone working in the area.

PUBLICATIONS DIFFICULT TO OBTAIN BY INTER-LIBRARY LOAN

One reply to our request for News Letter data was unique. This, from two erstwhile scientists (?) of the Geological Survey-New York State Museum and Science Service, now employed in INDUSTRY, is evidence of the farsighted and liberal publications policy of one of the country's major oil companies. The reply, slightly expurgated, is therefore reproduced as a service to our readers.

Dr. John G. Broughton
State Geologist
New York State Geological Survey
New York State Museum
Albany, New York

Dear Dr. Broughton:

Your very warm and moving form letter concerning the next News Letter arrived the latter part of last week. Please excuse the long delay in reply which is due to the fact that we wanted to wrap up several miscellaneous papers pertaining to the geology of your State first. As a matter of fact, there are still a dozen or so that need revision, but we think that it will be better if we save them for the next time around because we always say that "HASTE MAKES WASTE", and we would much rather not publish at all than put out work that is SHODDY. You know, too, that only subjects of wide interest to the geological science, and of great importance and significance are chosen for our ~~profane~~ profound inquiries, and, as a consequence, each paper must be a perfectly polished gem because so much esoteric knowledge depends on it.

So, without further adeau, we have taken pen in hand and compiled the following list of publications on New York State geology; which follows:

Has the Frontenac Arch Been Broken In Recent Time?, Bull. Amer. Med. Assoc., V. 69, No. 78493, Feb. 1960.

Did the Kesselring Well Penetrate the Moho?, World Oil, V. 69, No. 78493, Jan. 1960.

The Coal Deposits of the Central Adirondack Mountains, N. Y., Mad Mag., 1 Apr. 1960.

The Cohoes Mastadon and Its Impact On The Space-Time Continuum, Amer. Meatcutters Annual Conv., Dime Box, Texas, 14 Feb. 1960 (Pres. address)

Some Economic Factors Affecting the Recovery of Coprolite from the Education Building in Albany, N. Y., Home and Garden, Jan. 1960.

A Method for the Immunization of Milch Cows Against Anthraxolite, Bull. Nat. Chiropractors Assoc., V. 69, No. 78493, Mar. 1960.

A Revolutionary New Theory On the Origin of New York State, New York State Commerce Dept. Special Bull., 1 Apr. 1960

An Evaluation of a New Method of Ore Dressing at Tuxedo, N. Y., Bull. Amer. Fashion Designers, 4 May 1960.

The Supersonic Whistle As An Aid In the Location of Clay-Dog Deposits, Field and Stream, June 1960.

A Rapid and Inexpensive Field Method for the Detection of Pot-Holes, Revereware Newsletter, June 1960.

A Critical Review of the New Geological Map of the Empire State, U. S. News and World Report, July 1960.

Step-Faulting in the Indian Ladder Beds, Bull. Amer. Woodworkers Union, V. 1, No. 1, Oct. 1960.

Notes For the Uranium Prospector; 54th Revision, with a chapter on the Ramapo Uranium Co. and its Impact On the Economy of New York State, Analytical Chimica Acta, Nov. 1960.

An Abridged Guide to the Geology Along the New York State Thruway for Compact Cars, Doklady Akademii Nauk SSSR, Nov. 1960.

Knappes in Overturned Beds at Sleepy Hollow, N. Y., Spring-Maid Gazette, Dec. 1960.

Yours Intact,

John A. Graham
John J. Prucha

THESES ON NEW YORK GEOLOGY (1960 SUPPLEMENT)

ADAMS, GEORGE F., Glacial waters in the Walkill Valley, 1934, M.A., Columbia University.

BAUM, B. R., A petrographic study of the carbonates of the west central Taconic region, 1960, M.S., Rensselaer Polytechnic Institute.

BERRY, G. W., Glacial gravels of the upper Chenango River Valley, 1936, M.A., Colgate University.

COON, R. F., Surficial geology of Syracuse East and Manlius, New York 7 1/2' quadrangle, 1960, M.S., Syracuse University.

DOE, B. R., The distribution and composition of sulfide minerals at Balmat, New York, 1960, Ph.D., California Institute of Technology.

ELAM, J. C., Geology of Troy South and East Greenbush quadrangle of New York, 1960, Ph.D., Rensselaer Polytechnic Institute.

FLEMING, WILLIAM L., Glacial geology of central Long Island, 1931, M.S., Yale University.

GABRIEL, RALPH HENRY, The evolution of Long Island; a story of land and sea, 1919, Ph.D., Yale University.

GIFFORD, JOHN D., Glacial drainage in the Kasoag quadrangle, New York, 1941, M.S., Oklahoma University.

HAPP, STAFFORD C., Geomorphic problems of the Minisink Valley, 1939, Ph.D., Columbia University.

HASSER, EDWARD G., A study of Lake Iroquois and Post-Lake Iroquois sediments in a peat bog (Syracuse), 1954, M.S., Syracuse University.

HEYBURN, M., Geological and geophysical investigation of the Sanford Hill ore body extension, Tahawus, New York, 1960, M.S., Syracuse University.

HUMES, E. C., JR., Geology of portions of the Ithaca and Watkins 15' quadrangles, 1960, M.S., University of Rochester.

JAMES, C., X-ray fluorescent analysis of the iron content of mafic silicates in pyroxene amphibolite host rock at the Scott mine, Sterling Lake, New York, 1960, M.S., University of Illinois.

JOHNSON, HOWARD F., The upland erosional surfaces of the Catskills in relation to the present day drainage, 1933, M.S., Cornell University.

KING, JESSIE M., Glacial sculpture in the region of the north-flowing Finger Lakes of Central New York, 1934, M.A., Columbia University.

KRUEGER, W. C., Sedimentary petrology of the Schenectady quadrangle and a portion of the Austin Glen quadrangle in eastern New York, 1960, M.S., University of Rochester.

LA FLEUR, R. G., Pleistocene geology of the Troy, New York quadrangle, 1960, Ph.D., Rensselaer Polytechnic Institute.

LEUNG, S., The iron content of the mafic minerals in the pyroxene amphibolite host rock at the Scott mine, Sterling Lake, New York, 1960, M.S., University of Illinois.

LIVINGSTON, C., The Appalachian magnetite deposits and their relation to tectonics and metamorphism, 1960, M.S., University of Illinois.

LUMSDEN, D., The Grimsby sandstone in New York State, 1960, M.A., University of Buffalo.

MALIN, D. M., X-ray fluorescent analysis of rocks and minerals, 1960, M.S., St. Lawrence University.

MC ALESTER, A. L., Upper Devonian pelecypods of the New York Chemung stage, 1960, Ph.D., Yale University.

NAMOWITZ, SAMUEL N., The great inland scarp of Long Island, 1937, M.A., Columbia University.

NUGENT, R. C., Geology of the Elmira, Waverly and Owego quadrangles, New York, 1960, M.S., University of Rochester.

O'BRIEN, P. J., The geology of Schaghticoke type locality and environs, Rensselaer County, New York, 1960, M.S., Rensselaer Polytechnic Institute.

PELTIER, LOUIS C., The glacial geology of lower Clove Creek Valley, New York, 1939, M.A., Columbia University.

PLATT, L. B., The structure and stratigraphy of the Cossayuna area, New York, 1960, Ph.D., Yale University.

POTH, CHARLES WARNER, A study of the Pleistocene sediments and glacial geology in the valley of Ischua Creek, 1953, M.A., Buffalo University.

RUDELL, MARJORIE, Glacial gravels, Manhasset formation of Long Island, as found in the pits of Goodwin Gallagher, Roslyn, New York, 1935, M.A., Columbia University.

[illegible], R. E., The [illegible] of the [illegible] and Varieties of [illegible], 1950, M.A., University of Rochester.

[illegible], [illegible] analysis of the [illegible] content of [illegible] sediments in [illegible], New York, 19[illegible], M.S., University of Illinois.

[illegible], ROBERT [illegible], The [illegible] of the Camillus [illegible] of [illegible], 1952, M.S., Cornell University.

[illegible], Joseph L., Glacial Geology of the Region of the North-Flowing Finger Lakes of Central New York, 1954, Ph.D., Columbia University.

[illegible], M. E., [illegible] of the [illegible] in the [illegible], New York, 1950, Ph.D., University of Rochester.

[illegible], J. G., [illegible] Geology of the [illegible], New York [illegible], 1937, Ph.D., Cornell University.

[illegible], R. E., [illegible] of the [illegible] in the Finger Lakes, New York, 1956, M.S., University of Illinois.

[illegible], The [illegible] of the [illegible], 1957, M.S., University of Illinois.

[illegible], L., The [illegible] of the [illegible], New York, 1938, M.S., University of Rochester.

[illegible], E. N., [illegible] analysis of [illegible], 1952, M.S., [illegible] University.

[illegible], [illegible], 1950, Ph.D., Yale University.

[illegible], [illegible], 1950, M.S., Cornell University.

[illegible], [illegible], New York, 1958, M.S., University of Rochester.

[illegible], [illegible] County, New York, 1951, M.A., [illegible] University.

[illegible], [illegible] Lake, New York, 1955, M.S., Syracuse University.

[illegible], [illegible], New York, 1955, Ph.D., [illegible].

[illegible], [illegible], 1952, Ph.D., [illegible].

[illegible], [illegible], New York, 1952, M.S., [illegible] University.

SMOOR, P. B., Dimensional orientation studies of turbidite graywackes, 1960, M.S., McMaster University.

THOMPSON, HENRY D., Geomorphology of the Hudson Gorge in the Highlands, 1935, Ph.D., Columbia University.

THREET, RICHARD L., Geology and the origin of the Lake Ontario Basin, 1949, M.S., University of Illinois.

TUTHILL, S. J., A local survey of the Cardiff shale (Middle Devonian) in the Chittenango Valley, New York, 1960, M.S., Syracuse University.

TUTTLE, FRANCES, Textural and mineralogical analysis of late Wisconsin glacial and post-glacial deposits from Suffolk County, New York, 1943, M.S., Smith College.

WEBER, J. N., Geochemistry of some graywackes and some shales, 1959, M.S., McMaster University.

WEISS, LAWRENCE, Origin of the Gardiners clay in eastern Long Island, New York, 1951, M.S., New York University.

WILBUR, DORIS M., Pleistocene and recent history of the Randolph, New York area, 1929, Ph.D., Iowa State University.

WOODROW, D. L., The paleontology and paleoecology of a portion of the Upper Devonian in south central New York, 1960, University of Rochester.